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RESEARCH ARTICLE

# Gone unnoticed: The first record of *Pytho depressus* in Greece

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## Abstract

*Pytho* is a small saproxylic genus with 10 species belonging to the tenebrionoid family of Pythidae, that live in the cambial layer of dead trees whilst feeding on them. *Pytho depressus* is the most widespread species of the genus with records in more than 30 countries. In this study we report the occurrence of this genus and this species for the first time in Greece, something that marks the southernmost distribution of the species worldwide.

## Keywords

Greece, *Pytho*, *Pytho depressus*, Rhodope Mountain range, saproxylic beetles, Tenebrionoidea.

## Introduction

Genus *Pytho* Latreille, 1796 is one of the few genera comprising the family Pythidae (Solier, 1834). There are ten species belonging to the genus with six of them being found in the Palearctic realm (Pollock 1991; Háva and Zahradník 2021) and one more that is currently in description (Jaskula pers. com.). In Europe three *Pytho* species have been recorded, namely *Pytho abieticola* (J. R. Sahlberg, 1875), *P. kolwensis* (C. R. Sahlberg, 1833) and *P. depressus* (Linnaeus, 1767), with the latter being the most widespread and abundant one. It has been found in 32 countries spreading from

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Spain in the west to South Korea in the east (Jaskuła et al. 2024). This species has a flattened body, that facilitates its movement through the cambial layers of trees, and body length of 7.5–13.7 mm (Jaskuła et al. 2024). *P. depressus* is a saproxylic forest dwelling species, and its preferred habitat are boreal conifer forests where it can feed on dead fallen and standing but still fresh trees of large diameters with intact bark. The preferred host tree species of *P. depressus* are pines (*Pinus* spp.), but it has been observed feeding on other conifer species such as spruce (*Picea* spp.), larch (*Larix* spp.) and fir (*Abies* spp.), but also broad-leaved trees like birch (*Betula* spp.) and different species of the family Salicaceae (Pollock 1991; Háva and Zahradník 2021). The larvae of *P. depressus* have a broader feeding spectrum, ranging from eating dead wood, sawdust coming from other wood boring species to even the larvae of other saproxylic insects (Jaskuła et al. 2024).

Its life cycle is strongly dependent on the presence of dead and decaying wood and lasts two years. After mating males die, and females lay eggs in clusters inside host trees around the beginning of summer. After egg hatching, larvae feed on their host and by the end of summer they enter the pupal stage, which takes place in special pupal chambers where the adults also overwinter (Thomaes et al. 2022; Jaskuła et al. 2024)

*P. depressus* is listed in the European Red list of saproxylic beetles issued by the IUCN as Least Concern (LC category) due to its large distribution range (Cálix et al. 2018), but it must be noted that outside boreal regions its populations can be scattered and isolated. The population scarcity coupled with unsustainable forestry practices such as intensive logging and the removal of dead trees pose a constant threat on species' microhabitats of the species and consequently, of the species itself (Laaksonen et al. 2008; Thomaes et al. 2022).

## Methods

Examined specimens were collected on the end of July 2023 (25–27.7.2023) using multi funnel traps equipped with KaiPin® (Novagrica, Greece) at two different localities along Rhodope Mountain range National Park (Drama, Greece). The traps were placed in mixed forest stands that mainly consisted of *Pinus nigra*, *Betula pendula* and *Fagus sylvatica*. Samples were transferred to the lab of Forest Entomology of the Forest Research Institute (Hellenic Agricultural Organization Dimitra) and were identified using the diagnostic traits presented in Pollock (1991) and then stored in ethanol and deposited in the lab's collection. Pictures were taken using a ZEISS Stemi 508 stereoscope equipped with an Axiocam 208 color camera. Lastly the locations were mapped using QGIS Version 3.38 free and open-source geographic information system (Fig. 1)

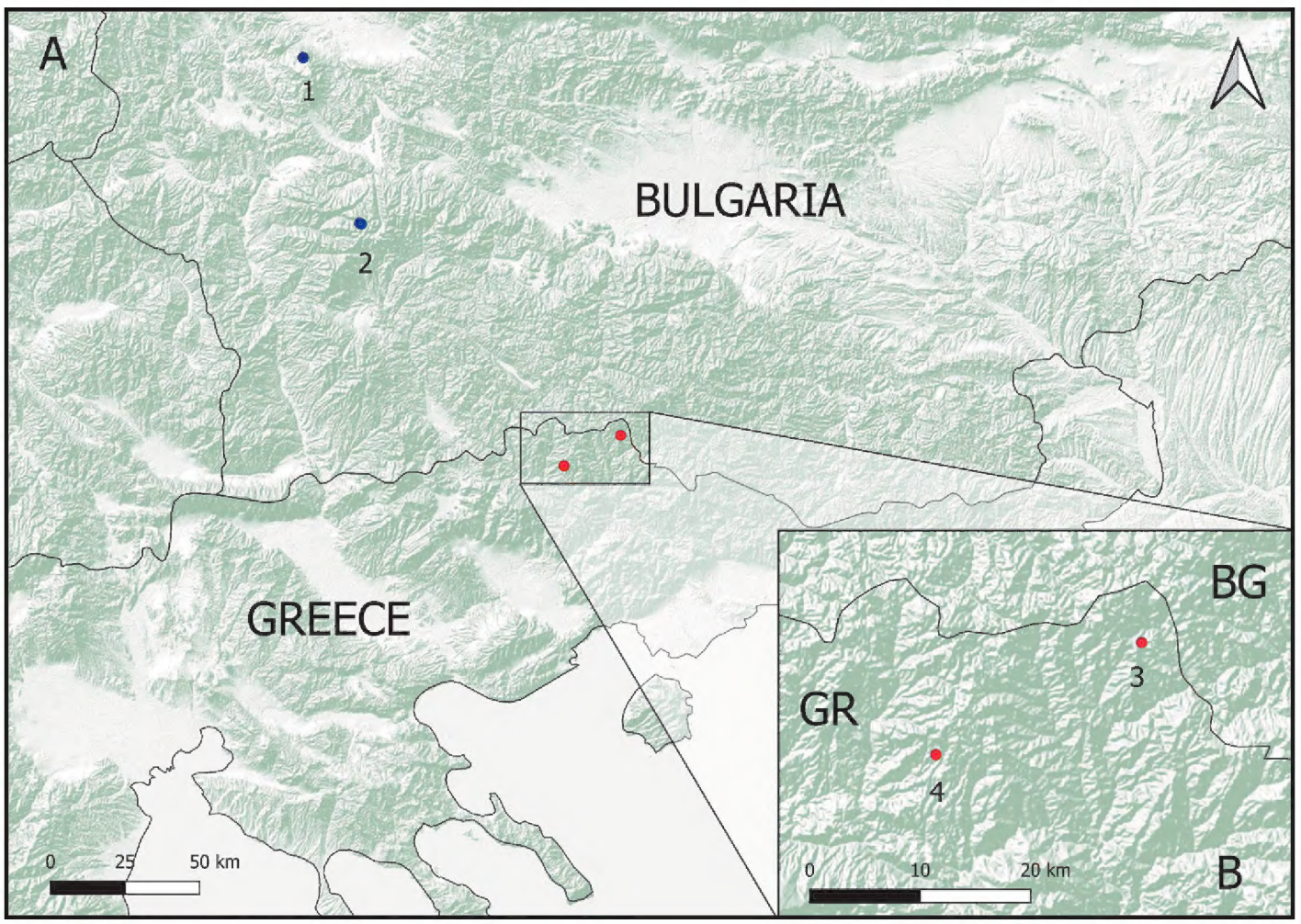


**Figure 1. A** Map showing the two locations of the records in Bulgaria (1,2) that are mentioned in (Kovács et al. 2011) in contrast to the two new ones in Greece; **B** Map showing a closeup of the two Greek localities (3: Specimen 1, 4: Specimen 2).

## Results

Family Pythidae Solier, 1834

Genus *Pytho* Latreille, 1796

*Pytho depressus* (Linnaeus, 1767)

The identification of the specimens was based on the characters described in Pollock (1991). Both specimens have a size of approximately 1.3 cm and a strongly arcuate left mandible. The structure of the pronotal beads is typical of the species, the pronotum is widest in the middle, the pair of pronotal depressions is present, the elytra have convex carinate intervals, and both specimens present extreme coloration patterns for the species, one having elytra entirely metallic blue (Fig. 3), the other one having elytra entirely brown. (Fig. 2)

1. East Macedonia, Drama, Rhodope Mountain range [41°30'42.4"N 24°30'19.9"E], July 2023, alt 1.323 m, 1 specimen in multi-funnel trap, leg. I.Gkourogiannis.
2. East Macedonia, Drama, Rhodope Mountain range [41°25'15.6"N 24°16'58.7"E], July 2023, alt. 1.046 m, 1 specimen in multi-funnel trap, leg. I. Gkourogiannis

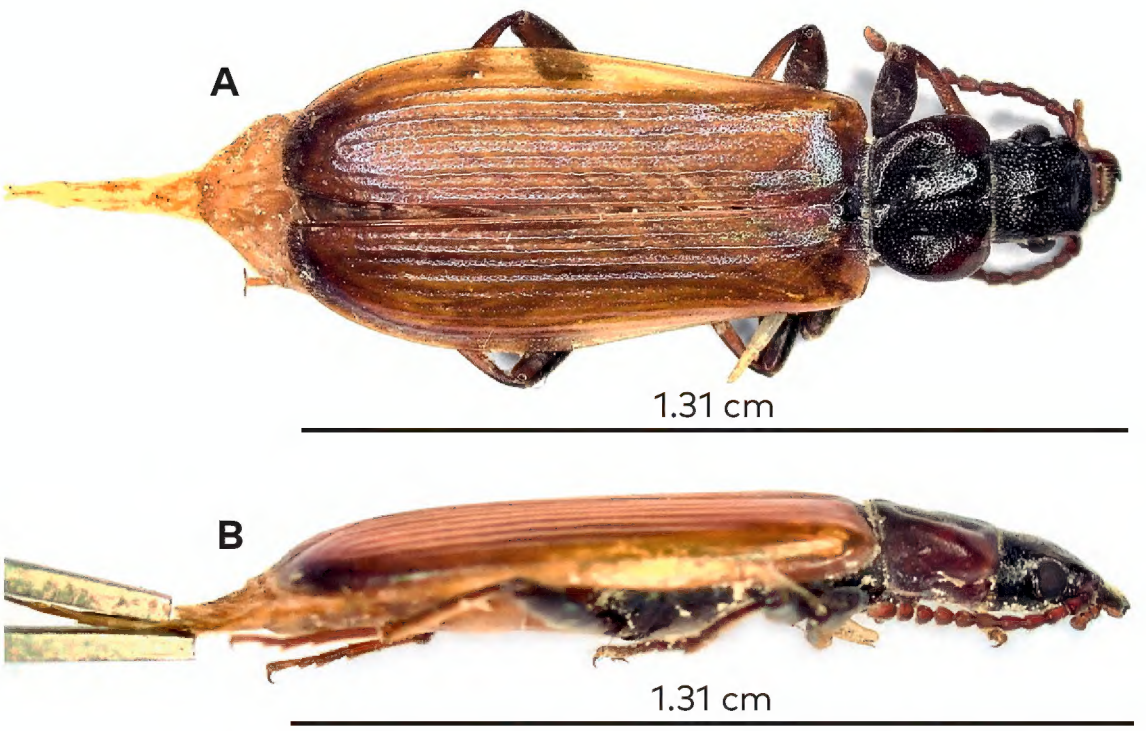


**Figure 2. A** Dorsal view of the first specimen; **B** Lateral view.

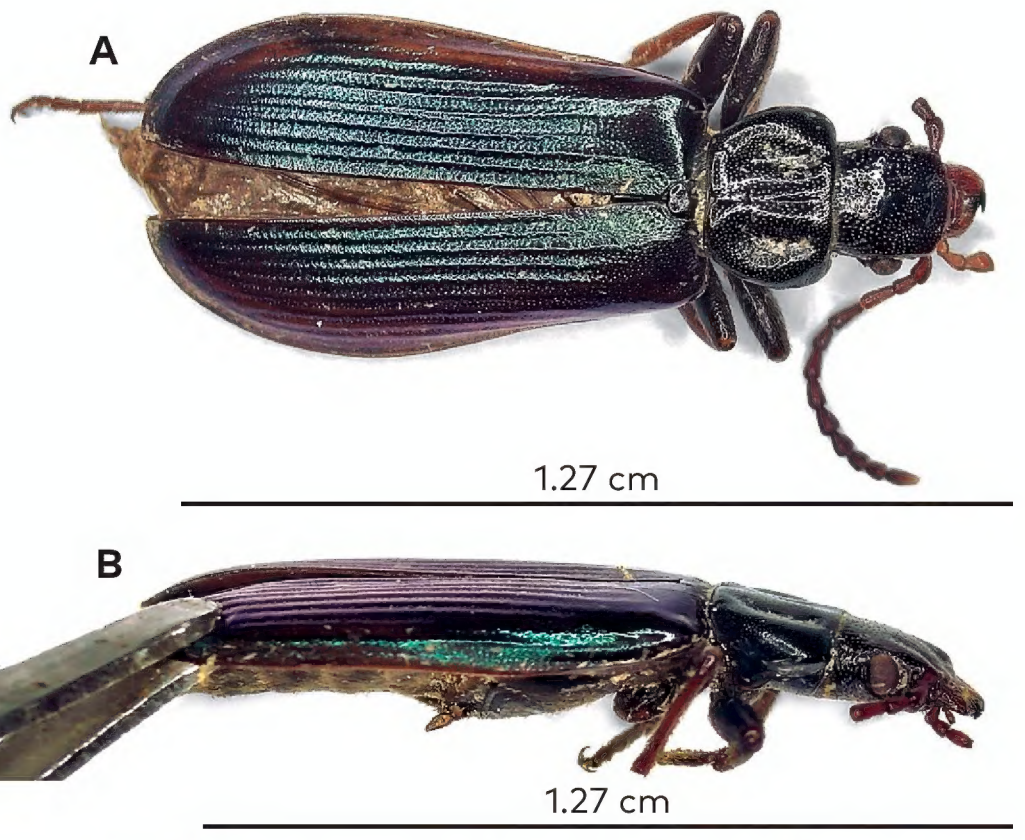


**Figure 3. A** Dorsal view of the second specimen; **B** Lateral view.

## Discussion

This article provides new information on the family Pythidae in Greece. Firstly, it presents the first record of the genus *Pytho* in the country and adds another species to the Greek fauna that consequently broadens the current knowledge on the saproxylic insects of Greece. Additionally, *Pytho depressus* represents only the second species of

the family ever recorded in Greece. The other member, *Osphyoplesius loebli* Español, 1975, has been reported only once, from the Epirus region (Espanol, 1975). This rarity may well be attributed to the fact that *O. loebli* is an anophthalmous, soil-dwelling beetle with a cryptic lifestyle, which makes the species particularly inconspicuous and difficult to detect (Magrini and Uliana 2015).

Based on the current literature enhanced by these new records of *Pytho depressus* it is evident that species natural range is greater than initially thought. These records establish the new southernmost boundary of the species' distribution, which was previously thought to be confined to central Italy (Dias et al. 2021). The closest known records of the species are in the Rila mountain range (southern Bulgaria) (Kovács et al. 2011) (Fig. 1A).

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